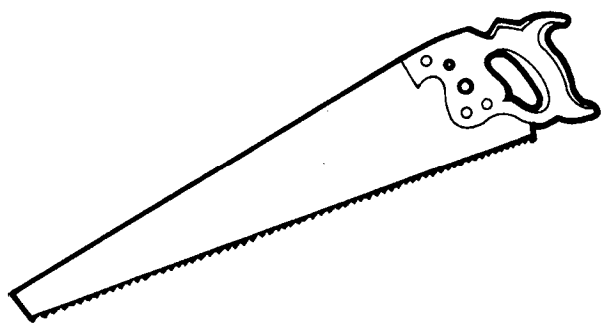


Chapter 46 SAWS

HOW TO CHOOSE AND USE THEM

The "Types and Uses" section provides you with a list of some of the types of saws. These pages should help you select the right saw to do the job.

The "Using" section tells you how to use the saw to perform the desired function. The "Care" procedures tell you how to care for the item.



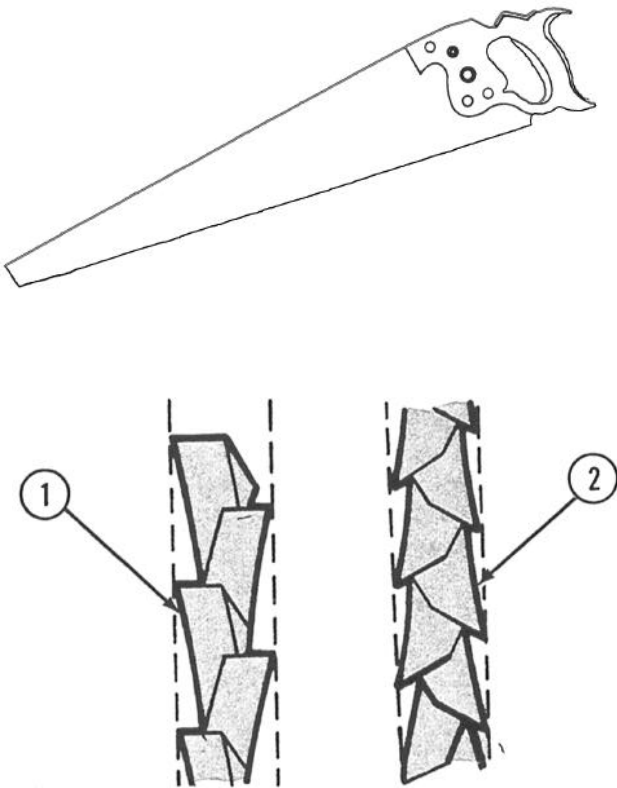
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TYPES AND USES

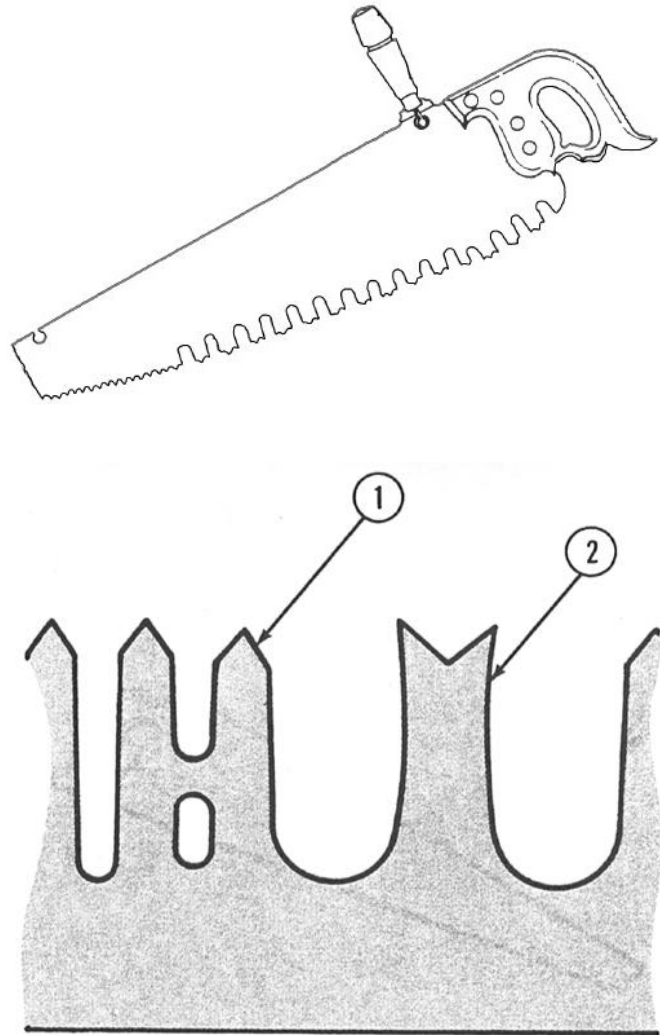
Saws are tools with thin, flat steel blades that have a row of spaced notches or "teeth" along the edge. The blade is fastened to a handle. Saws are available in various sizes and designs depending on their use and the material to be cut. The most common types of saws are handsaw, (crosscut and rip saw), backsaw, one-man crosscut saw, two-man crosscut saw, nested saw (keyhole and compass) and hacksaw.

HANDSAW



The handsaw consists of a thin flat blade with teeth and a wooden or plastic handle, called the heel, fastened to the end of the blade by screws. There are two categories of handsaws: the rip saw (1) and the crosscut (2). The rip saw is designed to cut with the grain of wood, and the crosscut saw is designed to cut against the grain. The handsaw is used in carpentry, rough-out work, and for "finish" hand sawing. Sizes of handsaws vary depending on design and nature of the task.

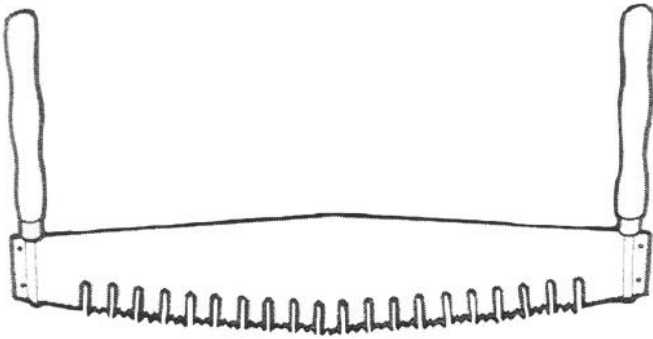
ONE-MAN CROSSCUT SAW



The one-man crosscut saw is about 36 inches long and has a handle at one end. This type of saw is characterized by a high-grade steel blade with two types of teeth known as "cutters (1) and "rakers" (2). The cutters do the cutting, and the rakers chisel out and remove chips from the cut. It is used for heavy work such as cutting down trees and sawing heavy timbers.

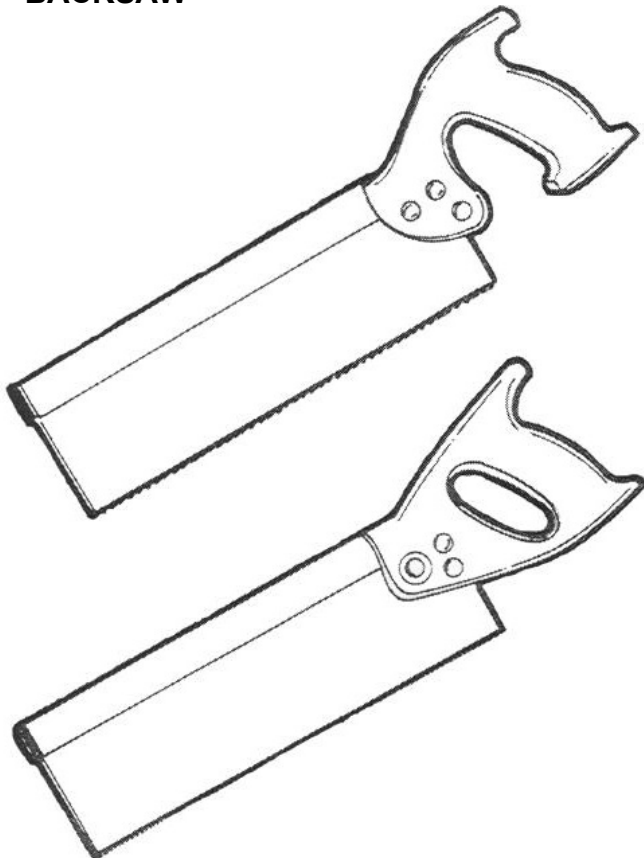
TYPES AND USES - Continued

TWO-MAN CROSSCUT SAW



The two-man crosscut saw is 5 to 6-1/2 feet long with a handle at each end. As with the one-man crosscut saw, it also has a high-grade steel blade with the "cutter" and "raker" teeth arrangement. It is used when two men are required for extra heavy cutting jobs.

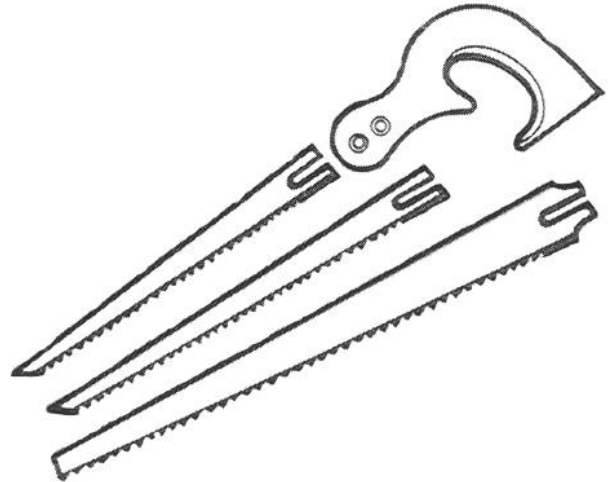
BACKSAW



The backsaw has a straight blade and parallel top and bottom, with a heavy strip of steel or brass wrapped along the back to provide rigidity. The handle is of similar

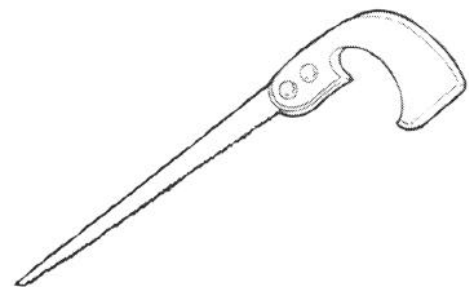
shape to other hand saws except it is usually mounted higher. Backsaws are used for general bench work such as cutting joints and smaller sections of lumber to length. Sizes vary depending on design and nature of work.

NESTED SAWS



Nested saws consist of a wooden handle to which several different blades can be attached, making up different types of saws such as the keyhole or compass saw. A slotted end at the heel of each blade slips into the pistol-grip type handle where a wingnut fastens it in place. Nested saws are used to cut along curved lines, to start cuts for larger saws, or to make starting saw cuts from drilled holes or small openings. The size of these saws will vary depending on design and nature of use.

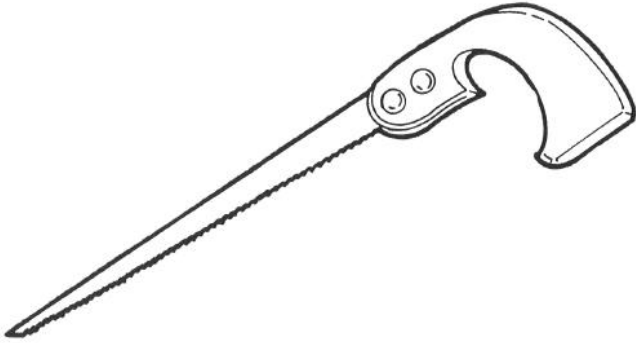
KEYHOLE SAW



The keyhole saw is the smallest type of nested saw. Its blade has a very narrow point small enough to enter a 1/4-inch hole. It is used for close-quarter work, such as cutting, shaping, or enlarging holes in a board.

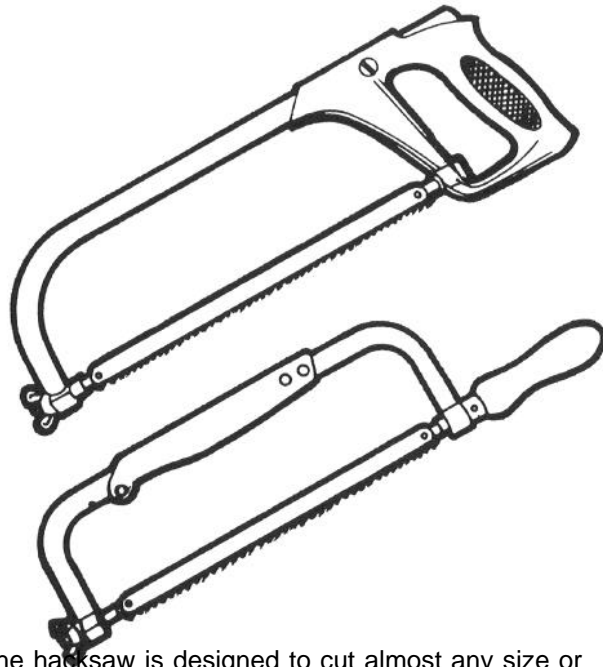
TYPES AND USES - Continued

COMPASS SAW



The compass saw is slightly larger than the keyhole saw. The teeth are so arranged that the blade can easily be turned for cutting curves or holes. As with the keyhole saw, the compass saw will vary in size depending on the design and purpose.

HACKSAW

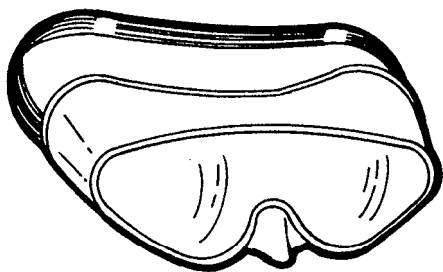


The hacksaw is designed to cut almost any size or shape of metal object. The hacksaw uses two types of blades, hard and flexible. The type of blade used depends on the nature of the task. The blade is held to the saw frame by pins that fit into small holes at each end of the blade. Blade tension is adjusted by a screw and wingnut assembly at either the nose or the handle end of the frame. The hacksaw comes in various designs, depending on the purpose.

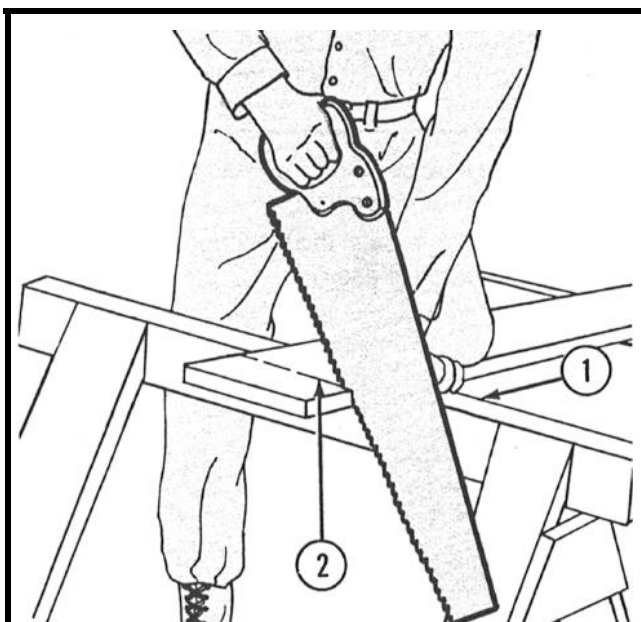
SAFETY

1. Before using, inspect the tool. Do not use any damaged or broken saw.
2. Store all tools in their proper places when not being used.
3. Wear proper eye protection when using any saw.
4. Do not throw or drop any tools. If a saw is dropped, inspect immediately before reusing.
5. Using clamps or vises, steady or secure any loose material to be cut.
6. Do not allow pointed or edged tools to lie around where they may injure someone.
7. Be careful not to allow the fingers or other parts of body to get in the line of cut.
8. Do not use a tool for any purpose other than that for which it was designed.

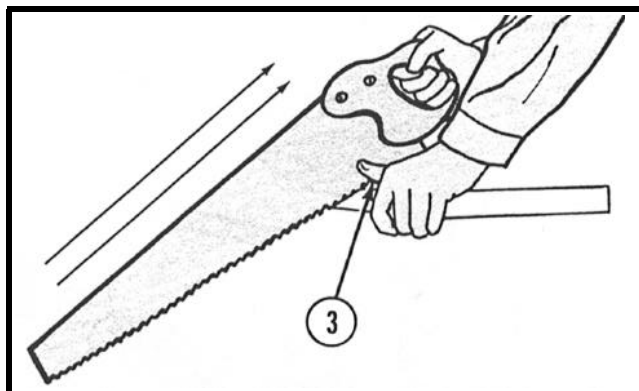
USING THE CROSSCUT SAW



WARNING
WEAR EYE PROTECTION.

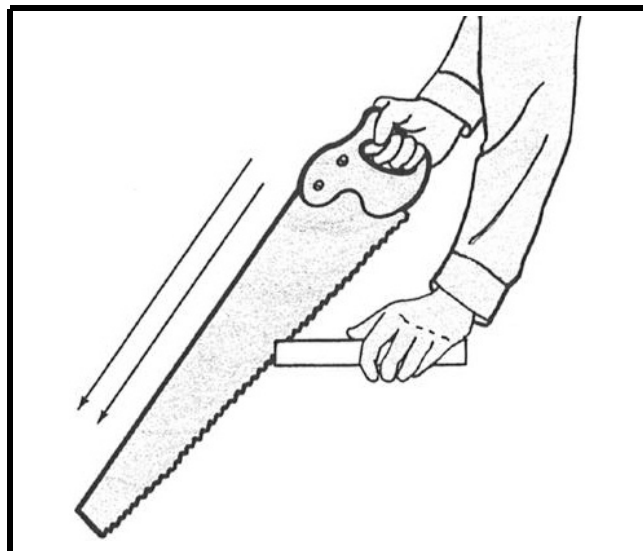


- 1** In using the crosscut saw, place the work on a level just below the knees. Place one sawhorse, bench or other support (1) fairly close to line of cut (2).

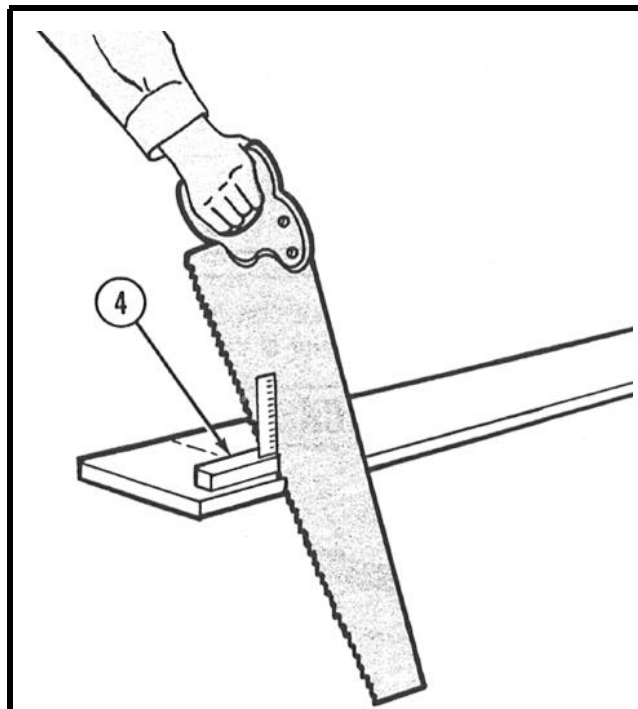


- 2** To start the cut, place thumb (3) against the side of the saw blade, being careful to hold it well above *teeth*.

- 3** Start the cut by drawing back a few inches of teeth at the heel of the saw a few times.

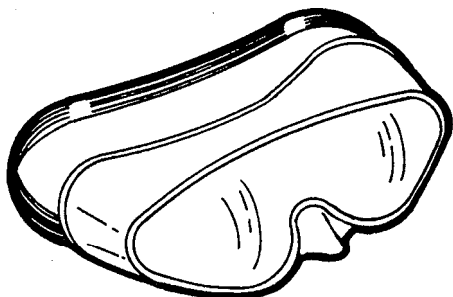


- 4** At approximately a 45 degree angle, saw only on the downward stroke applying pressure evenly.



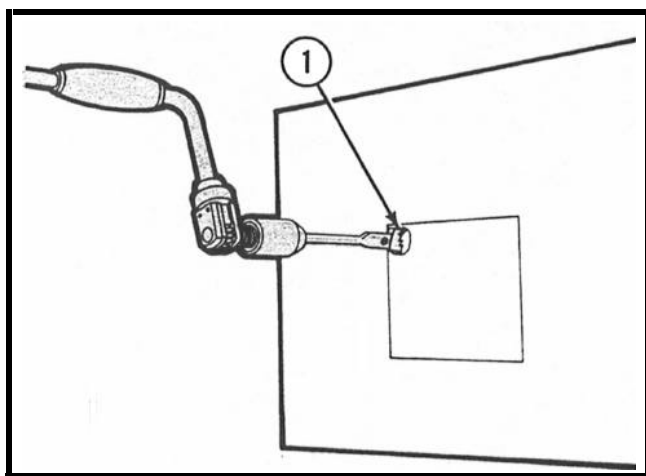
- 5** Keep the saw blade at a right angle to the work surface by checking the saw position occasionally with a try square (4).
- 6** When nearing end of cut, hold the waste side of the wood to prevent board breaking off unevenly.

USING THE KEYHOLE SAW

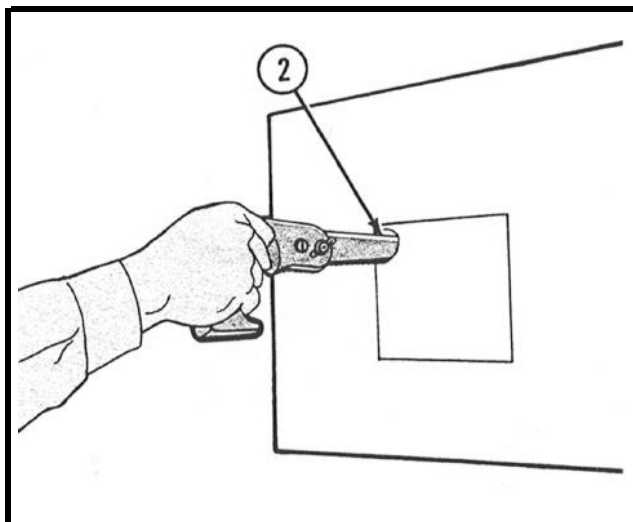


WARNING

WEAR PROPER EYE PROTECTION TO AVOID FLYING WOOD CHIPS OR DEBRIS.

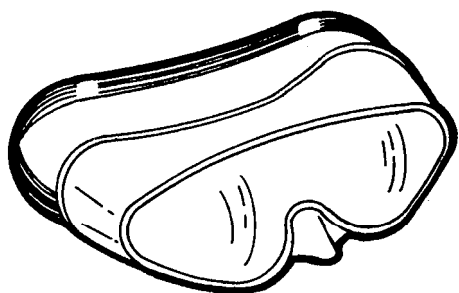


- 1 To make an inside-out cut, first drill a hole (1) large enough to admit the point of the saw.



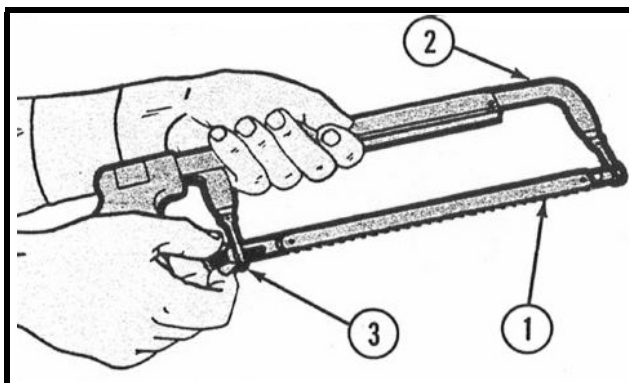
- 2 Insert the saw blade (2) and start to cut slowly, with a minimum of pressure.
- 3 Be careful not to twist the blade too sharply, as the narrow blade will easily bend.

USING THE HACKSAW



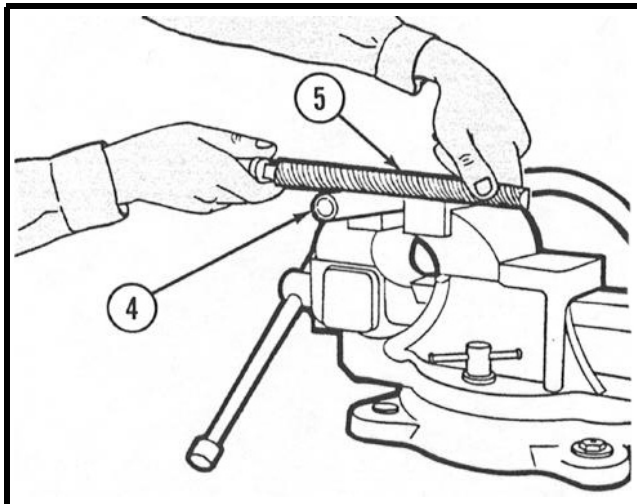
WARNING

WEAR PROTECTIVE EYEWEAR TO AVOID FLYING METAL CHIPS.

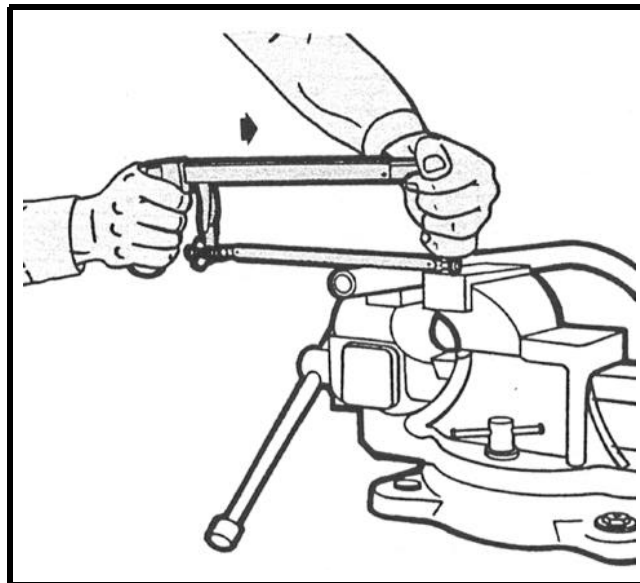


- 1 Insert the correct blade (1) in the hacksaw frame (2) and adjust wing nut (3) for proper tension.

USING THE HACKSAW - Continued



- 2 Secure the material (4) to be cut in a vise or other holding device to avoid vibration which may snap the blade.
- 3 To make an accurate cut, use a file (5) to make a notch for guiding the first strokes of the saw.



- 4 Steady the saw by holding the handle with the right hand and the frame with the left.
- 5 Hold the blade parallel to the work surface and cut on the push stroke, being careful not to bear down too hard. Draw the blade back using no pressure each time.
- 6 Saw at a rate not to exceed 40 to 50 strokes per minute.

CARE OF SAWS

1. Store blades in a dry place and apply a light coat of oil when not in use. This will keep the blades from rusting.
2. Never use a woodcutting saw to cut through nails or other metal.
3. Between cuts, place saw flat on a work bench or in a spot where teeth cannot be damaged.
4. Avoid placing heavy tools or objects on saw blades as this can result in distortion of the blade.
5. Do not force the saw if it binds. Use a wedge to spread the cut.
6. Replace damaged saw handles with new ones immediately when needed.
7. To keep saw teeth in top condition, touch up the teeth with a file occasionally.
8. Always loosen the blade tension on a hacksaw when not in use.
9. Always protect saw blade teeth from coming in contact with metal or other material that may damage them.
10. Always remove the nested saw blade from the handle for storage.

